LIMITED SITE INVESTIGATION REPORT

HUGÉ SITE PROJ NO. 0171

October 30, 1995

4000

Prepared for:

Mr. Pat Sheely
Terminal Railroad Association
700 North Second Street
St. Louis, Missouri 63102



HAZARDOUS WASTE PROGRAM MISSOURI DEPARTMENT OF NATURAL RESOURCES

	Contract of the Contract of th
Í	Site: Huge Co
	11 mus 0000602551
	Eroal: 1.5 Other:
	the same of the sa
•	10-30-95



Prepared by:

Daryl R. Bowles, CHMM
Director, Environmental Field Services

NOV - 6 225

The GEHM Corporation 1480 Ashley Rd. P.O. Box 65 Boonville, MO 65233



Phone: (816) 882-3485

Fax: (816) 882-5766

LIMITED SITE INVESTIGATION REPORT

Hugé Site 7625 Page Ave. St. Louis, Missouri Proj No 0171

1.0 EXECUTIVE SUMMARY

This limited site investigation was performed at the request for assistance (see Attachment 1) by the Missouri Department of Natural Resources (MDNR) for the purpose of identifying the source of pesticide/herbicide compounds previously detected on Terminal Railroad Association (TRRA) right-of-way property (see letter report dated June 21, 1995). Laboratory analyses determined significant concentrations of Chlordane and 2, 4, 5 TP to be present in the surface soils immediately behind the Hugé facility following ditch clearing activities by TRRA contractors. This investigation involved digging three excavations using a backhoe, soil/waste sampling and analyses and reporting. The results of this investigation revealed the presence of a twelve inch diameter, clay tile sewer line running from the Hugé facility and connecting to the six inch diameter clay tile sewer line encountered during the trenching activities in May, 1995. In addition to the Chlordane and 2, 4, 5 TP documented previously to be present, laboratory analyses from this investigation detected the presence of β - BHC, Δ - BHC (Lindane), Heptachlor, Dieldrin, 4, 4' DDD, and Methoxychlor, although, in relatively low concentrations.

2.0 DESCRIPTION OF SITE ACTIVITIES

(See Photographic Documentation, Attachment 4)

The site investigation activities were performed on September 5, 1995. Present during the site work were Daryl Bowles - GEHM Environmental, Pat Sheely - TRRA, Dan Morton - TRRA, Rochelle Gibson - MDNR, SLRO, and Keith Knelle - MDNR, SLRO. Contractors on-site included two personnel from Core Environmental Services - Bill Atkins and Greg Beebe. A backhoe was used for exploratory excavations at three locations designated XT-1, XT-2 and XT-3 (see site layout sketch, Attachment 2).

XT-1 final excavation dimensions measured 3 ft. x 5 ft. x 7 ft. depth (photos 1,2) and was located approximately 15 ft. north of the northwest corner of the building. Two soil samples were obtained from this location, one from the north side wall at 5 ft. depth (XT-1, 5'), and one from the bottom of the excavation at 7 ft. depth (XT-1, 7').

XT-2 was excavated in an attempt to locate any intercepting conduits leading from the building and to the six inch clay tile conduit which parallels the railroad tracks. Beginning from the west and excavating to the east, the twelve inch clay tile line was intercepted approximately 60 ft. east from the northwest corner of the building (photos 3, 4, and 5).

The conduit appeared to extend from the building, center of an overhead door on the north side of the building. During excavation, the 12 in. conduit was broken open exposing a 3 to 4 inch layer of sludge/waste, of which one sample (waste) was obtained.

XT-3 bisected the 12 in. conduit, approximately 4 ft. south of, and parallel to XT-2 (photos 6, 7, and 8). This excavation exposed the conduit sufficient to obtain one soil sample (XT-3) from below a bell joint of the conduit at approximately 3 ft. depth.

With approval from Keith Knelle, all soils removed were returned to the excavations. No wastes were generated as a result of this investigation. Prior to closing the excavations, MDNR personnel notified a Hugé facility representative (Helen Plake) who visited and observed the site.

3.0 SAMPLE RESULTS SUMMARY

Sample collection/handling procedures were in accordance with ASTM 4547, 4220 and 4840. All samples were submitted to the laboratory requesting analyses for total organochlorine pesticides (EPA method 8080) and chlorinated herbicides (EPA method 8150). Additionally, the three soil samples were analyzed for BTEX (EPA method 8020).

RESULTS SUMMARY TABLE

		SAMP	LE I.D.		\succeq
COMPOUND	XT-1, 5'	XT-1, 7'	XT-3	WASTE	Ka K
Chlordane (y+α)	ND	ND	30.30	680.00	
2,4,5, TP	ND	ND	18.60	ND	<u> </u>
β-BHC	ND	1.52	4.32	ND] 4
Δ - BHC	ND	0.74	ND	81.40	J. J
γ - BHC (Lindane)	ND	ND	2.59	ND	<u>D</u>
Heptachlor	ND	ND	2.16	ND	W.
Dieldrin	ND	ND	1.73	ND] " `
4, 4' DDD	ND	ND	62.20	NA	
Methoxychlor	ND	ND	24.60	NA	}
Benzene	ND	ND	ND	NA .	
Toluene	ND	ND	8.00	NA	
Ethyl benzene	ND	ND	19.00	NA	
Xylenes (total)	ND	ND	170.00	NA	

NO=NOT DETECTED, NA=NOT ANALYZED. LAB REPORTS ATTACHMENT 3.

4.0 DISCUSSION

The analytical results from this investigation are relevant only for determining the presence/absence of pesticide/herbicide compounds and have little value regarding the horizontal/vertical extent of contaminants. Assessing the extent of contaminants at this site would require an intrusive investigation for determining soil chemical quality data, hydro geological information and groundwater quality data. The discovery and presence of the 12 in. conduit leading away from the Hugé facility provides a likely source, and/or migration pathway for the compounds detected in the sub-surface at this site. However, additional sources (i.e. surface spillage) must be considered as well. Any further assessment efforts should include investigating the 6 in. clay tile conduit which parallels TRRA tracks to determine termination of the conduits effluent.

Report Distribution List:

- 1. Pat Sheely, TRRA
- 2. Steve Poplawski, Bryan Cave
- 3. Rochelle Gibson, MDNR SLRO

ATTACHMENT 1

REGULATORY CORRESPONDENCE

STATE OF MISSOURI

Mel Camahan, Governor + David A. Shorr, Director

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL QUALITY

St. Louis Regional Office 10805 Sunset Office Drive, Suite 100 St. Louis, MO 63127-1017 (314)822-0101

FAX (314)822-0943

July 19, 1995

Mr. Larry R. Hurt Terminal Railroad Association 1201 McKinley Venice, IL 62090

Dear Mr. Hurt:

Thank you for meeting Mr. Keith Knelle and myself on June 27, 1995. As we discussed with Mr. Daryl Bowles, Gehm Environmental; Mr. Steven Poplawski, Bryan Cave, and Mr. Dan Morton, Terminal Railroad Association, the Department is requesting the assistance of the Terminal Railroad Association. A limited site investigation is requested to identify the source of the chlordane and 2,4,5-TP encountered in the railroad right-of-way located behind the Huge Company, 7625 Page Avenue, St. Louis, Missouri (incident # 950531-1125-LDA). Any assistance you could provide would be appreciated.

Should you have any questions please contact me at (314) 822-0101.

Sincerely,

ST. LOUIS REGIONAL OFFICE

Rochelle Gibson

Environmental Specialist

RG/jh

C: Hazardous Waste Program Julie Warren, Superfund Daryl Bowles, Gehm Environmental Steven Poplawski, Bryan Cave

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS



1201 MCKINLEY VENICE, ILLINOIS 62090

> Venice, Illinois August 25, 1995

TELEPHONE: (618) 451-8400

Corrected Letter

Ms. Rochelle Gibson Missouri: Department of Natural Resources St. Louis Regional Office 10805 Sunset Office Drive - Suite 100 St. Louis, Missouri 63127-1017

Dear Ms. Gibson:

Re: Huge Site, 7625 Page Avenue

In response to your request dated July 19,1995, to Mr. L. R. Hurt, this is to inform of our schedule for conducting the limited site investigation. T.R.R.A. will supply a back hoe and operator to conduct exploratory trenching for the purpose of identifying the source of contaminates. Please be aware that respiratory protection will be required for all personnel sampling soit from the trenches. A site specific safety plan will be provided as well.

The exploratory activities are currently scheduled to begin at 8:00 A.M., Tuesday, September 5, 1995. If you have any questions regarding this, please call me at (618) 451-8413, or contact Mr. Daryl Bowles at (816) 882-3458.

Yours truly,

B. P. Sheeley,

General Superintendent

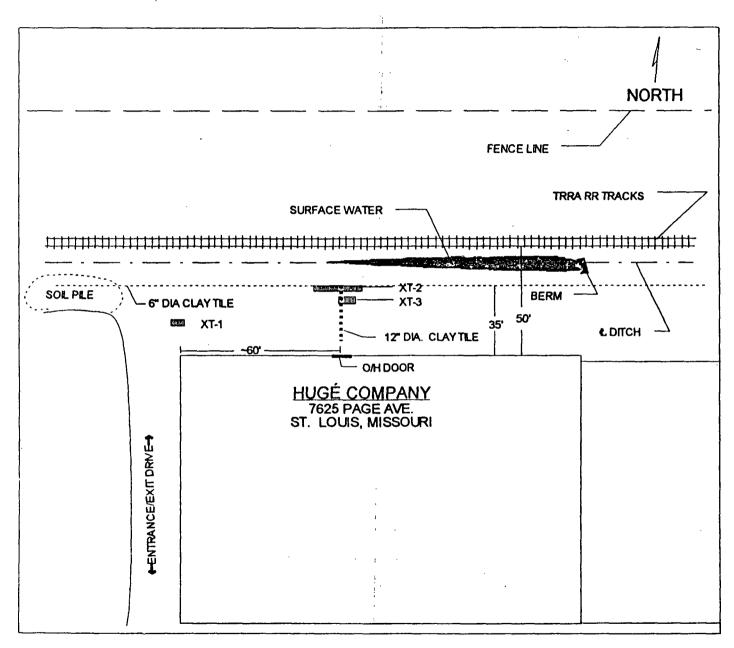
CC:

Daryl Bowles, GEHM

Steven Poplawski, Bryan Cave

ATTACHMENT 2

SITE LAYOUT SKETCH



ATTACHMENT 3

Analytical/Chain of Custody Documentation

2345 Millpark Drive Maryland Heights, MO 63043-3529 (314) 427-0550

September 18, 1995

The GEHM Corporation P.O. BOX 65 Boonville, MO. 65233

Attn: Daryl R. Bowles

Enclosed you will find analytical reports for the samples described below:

Date Received: 09/05/95

Chain of Custody Number: 009784

Environmetrics Laboratory Number: 9509/044

I have reviewed the data generated by the laboratory and have found the data to conform to the applicable methods and QC criteria. If you have any questions, please feel free to call me at (314) 427-0550.

Sincerely,

Kathy Abernathy Project Manager

Enclosure: Invoice Number 33785

The GEHM Corporation P.O. BOX 65

Boonville, MO. 65233 ATTN: Daryl R. Bowles

ENVIRONMETRICS

2345 Millpark Drive Maryland Heights, MO 63043-3529 (314) 427-0550

INVOICE: 33785

PROJECT NO:

TRRA HUGE SITE, ST. LOUIS, MO; 0171

PO: BOWLES

ORGANOCHLORINE PESTICIDES ONLY METHOD 8080/8081 PAGE One

SAMPLE ID: XT-1-5' **LAB ID:** 9509/044-001

QUANT FACTOR :

424.30

CAS NUMBER		PRACTICAL QUANTITATION LIMIT	RESULTS _µG/KG
319-84-6	alpha-BHC	1.27	ប
319-85-7	beta-BHC	2.55	. บ
319-86-8	delta-BHC	3.82	Ū
58-89-9	gamma-BHC (Lindane)	1.70	Ū
76-44-8	Heptachlor	1.27	Ū
57-74-9	gamma-Chlordane	1.57	Ū
57-74-9	alpha-Chlordane	18.12	U
309-00-2	Aldrin	1.70	U
1024-57-3	Heptachlor epoxide	35.22	Ū
959-98-8	Endosulfan I	5.94	Ū
60-57-1	Dieldrin	0.85	U
72-55-9	4,4'-DDE	1.70	Ū
72-20-8	Endrin	2.55	U
33212-65-9	Endosulfan II	1.70	Ū
72-54-8	4,4'-DDD	4.67	Ū
1031-07-8	Endosulfan sulfate	28.00	U
50-29-3	4,4'-DDT	5.09	Ū
72-43-5	Methoxychlor	74.68	Ū
7421-57-3	Endrin aldehyde	9.76	U
12789-03-6	Chlordane (technical)	5.94	บ
8001-35-2	Toxaphene	101.83	Ū

SURROGATE RECOVERY RESULTS

877-09-8 Decachlorobiphenyl (DCB) 116
2051-24-3 2,4,5,6-Tetrachloro-meta-xylene 93
(TCMX)

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 09/05/95 10:05
DATE RECEIVED: 09/05/95 15:37
DATE ANALYZED: 09/14/95
ANALYST: J.K.

The GEHM Corporation

P.O. BOX 65

Boonville, MO. 65233 ATTN: Daryl R. Bowles ENVIRONMETRICS

2345 Millpark Drive Maryland Heights, MO 63043-3529 (314) 427-0550

INVOICE: 33785

PROJECT NO:

TRRA HUGE SITE, ST. LOUIS, MO; 0171

PO: BOWLES

CHLORINATED HERBICIDES METHOD 8150/8151 PAGE One

SAMPLE ID: XT-1-5' **LAB ID:** 9509/044-001

QUANT FACTOR :

1.78

254.58

U

PRACTICAL QUANTITATION LIMIT **RESULTS** μg/KG μg/KG **CAS NUMBER** U 94-75-7 2,4-D 30.55 4.33 U 2,4,5-TP (Silvex) 93-72-1 U 5.09 2,4,5-T 93-76-5

SURROGATE RECOVERY RESULTS

1918-02-1 PICLORAM <u>% RECOVERY</u> 53

U = UNDETECTED

88-85-7

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 09/05/95 10:05 DATE RECEIVED: 09/05/95 15:37

Dinoseb

DATE ANALYZED: 09/14/95 ANALYST: J.K. The GEHM Corporation P.O. BOX 65
Boonville, MO. 65233
ATTN: Daryl R. Bowles

ENVIRONMETRICS

2345 Millpark Drive Maryland Heights, MO 63043-3529 (314) 427-0550

INVOICE: 3

33785

PO: BOWLES PROJECT: TRRA HU

TRRA HUGE SITE, ST. LOUIS, MO; 0171

VOLATILE ORGANICS ANALYSIS METHOD SW-846 8020/8021

Sample Identification: XT-1-5' Lab Number: 9509/044-001

RUN NUMBER	CAS <u>NUMBER</u>		PRACTICAL QUANTITATION <u>LIMIT</u>	<u>RESULTS</u>
318	71-43-2	Benzene	2 μg/KG	U μg/KG
318	108-88-3	Toluene	2	U
318	100-41-4	Ethylbenzene	2	U
318	1330-20-7	Total Xylenes	5	
		SURROGATE RECOV	ERY RESULTS	% RECOVERY
318	540-36-3	1,4-Difluorobenzene		97
318	462-06-6	Fluorobenzene		90
318	542-88-1	Bromochlorobenzene		103
318	460-00-4	4-Bromofluorobenzene		107

U = UNDETECTED
B = PRESENT IN BLANK
J = DETECTED, BUT BELOW PRACTICAL
QUANTITATION LIMIT

DATE COLLECTED: DATE RECEIVED:

09/05/95 10:05 09/05/95 15:37 09/06/95

DATE ANALYZED: ANALYST:

09/06/5 TH The GEHM Corporation

P.O. BOX 65

Boonville, MO. 65233 ATTN: Daryl R. Bowles ENVIRONMETRICS

2345 Millpark Drive Maryland Heights, MO 63043-3529 (314) 427-0550

INVOICE: 33785

PROJECT NO:

TRRA HUGE SITE, ST. LOUIS, MO; 0171

PO: BOWLES

ORGANOCHLORINE PESTICIDES ONLY
METHOD 8080/8081
PAGE One

SAMPLE ID: XT-1-7' **LAB ID:** 9509/044-002

QUANT FACTOR :

409.85

CAS NUMBER	<u> </u>	PRACTICAL QUANTITATION LIMIT <u>µG/KG</u>	RESULTS _µG/KG
319-84-6	alpha-BHC	1.23	· U
319-85-7	beta-BHC	2.46	1.52
319-86-8	delta-BHC	3.69	0.738
58-89-9	gamma-BHC (Lindane)	1.64	· U
76-44-8	Heptachlor	1.23	U
57-74-9	gamma-Chlordane	1.52	U
57-74-9	alpha-Chlordane	17.50	U
309-00-2	Aldrin	1.64	U
1024-57-3	Heptachlor epoxide	34.02	U
959-98-8	Endosulfan I	5.74	U
60-57-1	Dieldrin	0.82	U
72-55-9	4,4'-DDE	1.64	U
72-20-8	Endrin	2.46	U
33212-65-9	Endosulfan II	1.64	U
72-54-8	4,4'-DDD	4.51	U
1031-07-8	Endosulfan sulfate	27.05	U
50-29-3	4,4'-DDT	4.92 ,.	U
72-43-5	Methoxychlor	72.13	U
7421-57-3	Endrin aldehyde	9.43	U
12789-03-6	Chlordane (technical)	5.74	U
8001-35-2	Toxaphene	98.36	U

SURROGATE RECOVERY RESULTS

		% RECOVERI
877-09-8	Decachlorobiphenyl (DCB)	124
2051-24-3	2,4,5,6-Tetrachloro-meta-xylene	102
	(TCMX)	

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 09/05/95 10:00
DATE RECEIVED: 09/05/95 15:38
DATE ANALYZED: 09/14/95
ANALYST: J.K.

The GEHM Corporation P.O. BOX 65

Boonville, MO. 65233 ATTN: Daryl R. Bowles

ENVIRONMETR

2345 Millpark Drive Maryland Heights, MO 63043-3529 (314) 427-0550

INVOICE: 33785

PROJECT NO:

TRRA HUGE SITE, ST. LOUIS, MO; 0171

PO: BOWLES

CHLORINATED HERBICIDES

METHOD 8150/8151 **PAGE** One

SAMPLE ID: XT-1-7' **LAB ID:** 9509/044-002

QUANT FACTOR :

245.91

PRACTICAL QUANTITATION

CAS NUMBER		LIMIT ug/KG	RESULTS _ug/KG
94-75-7	2,4-D	29.51	· U
93-72-1	2,4,5-TP (Silvex)	4.18	U
93-76-5	2,4,5-T	4.92	ប
88-85-7	Dinoseb	1.72	U

SURROGATE RECOVERY RESULTS

% RECOVERY 1918-02-1 **PICLORAM**

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: DATE RECEIVED:

09/05/95

10:00

DATE ANALYZED:

09/05/95

15:38

09/14/95

ANALYST:

J.K.

The GEHM Corporation P.O. BOX 65
Boonville, MO. 65233
ATTN: Daryl R. Bowles

ENVIRONMETRICS

2345 Millpark Drive Maryland Heights, MO 63043-3529 (314) 427-0550

INVOICE:

33785

PO:

BOWLES

PROJECT:

TRRA HUGE SITE, ST. LOUIS, MO; 0171

VOLATILE ORGANICS ANALYSIS METHOD SW-846 8020/8021

Sample Identification: XT-1-7' Lab Number: 9509/044-002

RUN NUMBER	CAS <u>NUMBER</u>		PRACTICAL QUANTITATION <u>LIMIT</u>	<u>RESULTS</u>
318	71-43-2	Benzene	2 μg/KG	U μg/KG
318	108-88-3	Toluene	2	U
318	100-41-4	Ethylbenzene	2	U
318	1330-20-7	Total Xylenes	.5	
		SURROGATE RECOV	ERY RESULTS	% RECOVERY
318	540-36-3	1,4-Difluorobenzene		90
318	462-06-6	Fluorobenzene		90
318	542-88-1	Bromochlorobenzene		103
318	460-00-4	4-Bromofluorobenzene	•	100

U = UNDETECTED
B = PRESENT IN BLANK
J = DETECTED, BUT BELOW PRACTICAL
QUANTITATION LIMIT

DATE COLLECTED: DATE RECEIVED:

09/05/95 10:00 09/05/95 15:38

DATE ANALYZED:

09/06/95

ANALYST:

T.H.

The GEHM Corporation P.O. BOX 65

Boonville, MO. 65233 ATTN: Daryl R. Bowles

ENVIRONMETRICS

2345 Millpark Drive Maryland Heights, MO 63043-3529 (314) 427-0550

INVOICE: 33785

PROJECT NO:

TRRA HUGE SITE, ST. LOUIS, MO; 0171

PO: BOWLES

ORGANOCHLORINE PESTICIDES ONLY METHOD 8080/8081 PAGE One

SAMPLE ID: XT-3 **LAB ID:** 9509/044-003

QUANT FACTOR :

4323.39

CAS NUMBER		PRACTICAL QUANTITATION LIMIT	RESULTS μG/KG
319-84-6	alpha-BHC	12.97	ប
319-85-7	beta-BHC	25.94	4.32
319-86-8	delta-BHC	38.91	U
58-89-9	gamma-BHC (Lindane)	17.29	2.59
76-44-8	Heptachlor	12.97	2.16
57-74-9	gamma-Chlordane	16.00	11.7
57-74-9	alpha-Chlordane	184.61	18.6
309-00-2	Aldrin	17.29	U
1024-57-3	Heptachlor epoxide	358.84	บ
959-98-8	Endosulfan I	60.53	ប
60-57-1	Dieldrin	8.65	1.73
72-55-9	4,4'-DDE	17.29	Ŭ
72-20-8	Endrin	25.94	U
33212-65-9	Endosulfan II	17.29	. U
72-54-8	4,4'-DDD	47.56	62.2
1031-07-8	Endosulfan sulfate	285.34	U
50-29-3	4,4'-DDT	51.88	U
72-43-5	Methoxychlor	760.92	24.6
7421-57-3	Endrin aldehyde	99.44	ប
12789-03-6	Chlordane (technical)	60.53	U
8001-35-2	Toxaphene	1037.61	U

SURROGATE RECOVERY RESULTS

		% RECOVERY
877-09-8	Decachlorobiphenyl (DCB)	105
2051-24-3	2,4,5,6-Tetrachloro-meta-xylene	103
	(TCNY)	

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 09/05/95 11:45
DATE RECEIVED: 09/05/95 15:38
DATE ANALYZED: 09/14/95
ANALYST: J.K.

The GEHM Corporation P.O. BOX 65

Boonville, MO. 65233 ATTN: Daryl R. Bowles ENVIRONMETRI

2345 Millpark Drive Maryland Heights, MO 63043-3529

(314) 427-0550

INVOICE: 33785

PROJECT NO:

TRRA HUGE SITE, ST. LOUIS, MO; 0171

PO: BOWLES

CHLORINATED HERBICIDES

METHOD 8150/8151 PAGE One

SAMPLE ID: XT-3 LAB ID: 9509/044-003

QUANT FACTOR :

2577.32

PRACTICAL QUANTITATION

CAS NUMBER		LIMIT ug/KG	RESULTS µg/KG
94-75-7	2,4-D	309.28	. U
93-72-1	2,4,5-TP (Silvex)	43.81	18.6
93-76-5	2,4,5-T	51.55	ប
88-85-7	Dinoseb	18.04	U

SURROGATE RECOVERY RESULTS

% RECOVERY 1918-02-1 **PICLORAM** 124

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED:

09/05/95 09/05/95 11:45 15:38

DATE RECEIVED: DATE ANALYZED:

09/14/95

ANALYST:

J.K.

The GEHM Corporation P.O. BOX 65 Boonville, MO. 65233

ENVIRONMETRICS

2345 Millpark Drive Maryland Heights, MO 63043-3529

(314) 427-0550

ATTN: Daryl R. Bowles

INVOICE:

33785

PO:

BOWLES

PROJECT:

TRRA HUGE SITE, ST. LOUIS, MO; 0171

VOLATILE ORGANICS ANALYSIS

METHOD SW-846 8020/8021

PRACTICAL

Sample Identification: XT-3 Lab Number: 9509/044-003

	CAS <u>NUMBER</u>		QUANTITATION <u>LIMIT</u>	RESULTS
(1)	71-43-2	Benzene	2 μg/KG	U μg/KG
(1)	108-88-3	Toluene	2	8.00
(1)	100-41-4	Ethylbenzene	. 2	19.0
(1)		Total Xylenes	5	170
		SURROGATE RE	COVERY RESULTS	% RECOVERY
(1)	540-36-3	1,4-Difluorobenzene		103
(1)	462-06-6	Fluorobenzene		103
(1)	542-88-1	Bromochlorobenzene		1190
(1)	460-00-4	4-Bromofluorobenzene		140

U = UNDETECTED
B = PRESENT IN BLANK
J = DETECTED, BUT BELOW PRACTICAL
QUANTITATION LIMIT

DATE COLLECTED: DATE RECEIVED:

09/05/95 11:45 09/05/95 15:38

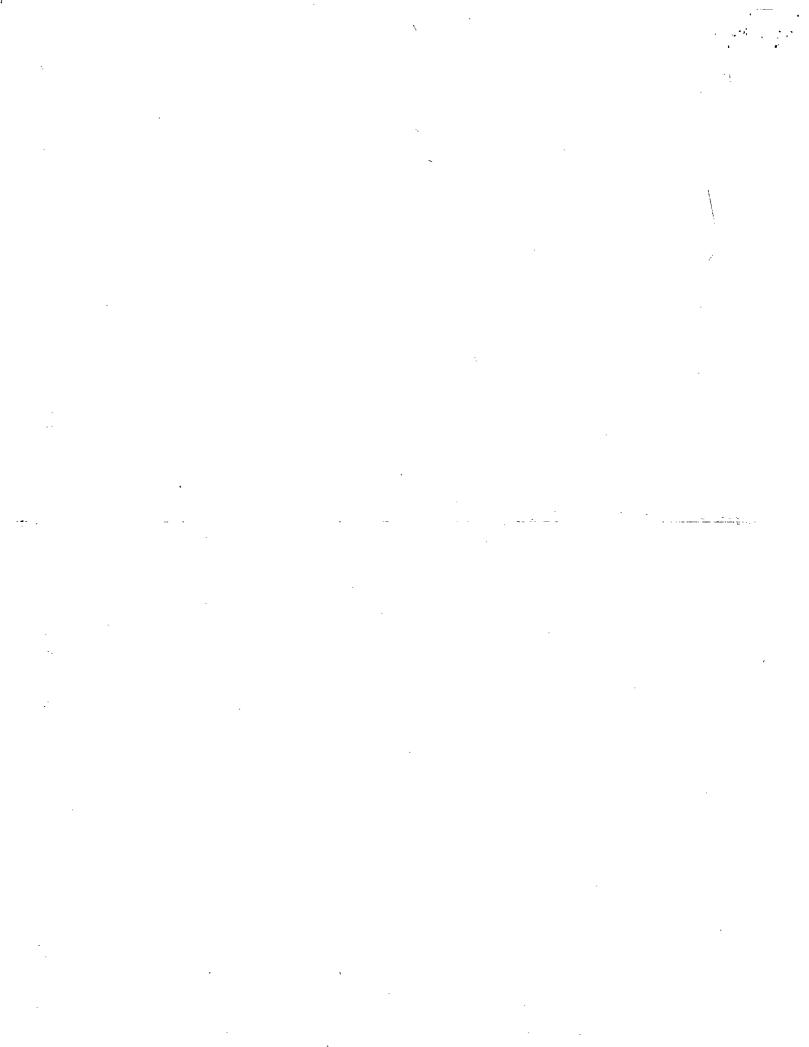
DATE ANALYZED:

09/06/95

ANALYST:

T.H.

in Society for Testing and Materials + American Chemical Society + American Industrial Hygiene Association



The GEHM Corporation

P.O. BOX 65

Boonville, MO. 65233 ATTN: Daryl R. Bowles **ENVIRONMETRICS**

2345 Millpark Drive Maryland Heights, MO 63043-3529 (314) 427-0550

INVOICE: 33785

PROJECT NO:

TRRA HUGE SITE, ST. LOUIS, MO; 0171

PO: BOWLES

CHLORINATED HERBICIDES

METHOD 8150/8151 PAGE One

SAMPLE ID: WASTE SLUDGE

LAB ID: 9509/044-004

QUANT FACTOR :

14371.95

PRACTICAL QUANTITATION

CAS NUMB	<u>ER</u>	LIMIT ug/KG_	RESULTS _ug/KG	
94-75-7	2,4-D	1724.63	Ū	
93-72-1	2,4,5-TP (Silvex)	244.32	Ŭ	
93-76-5	2,4,5-T	287.44	ប	
88-85-7	Dinoseb	100.60	U	

SURROGATE RECOVERY RESULTS

	-	% RECOVERY
1918-02-1	PICLORAM	.0

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED:

09/05/95

11:30

DATE RECEIVED:

09/05/95

15:39

DATE ANALYZED:

09/14/95

ANALYST:

J.K.

The GEHM Corporation

0

P.O. BOX 65

Boonville, MO. 65233 ATTN: Daryl R. Bowles ENVIRONMETRICS

2345 Millpark Drive Maryland Heights, MO 63043-3529

(314) 427-0550

INVOICE: 33785

PROJECT NO:

TRRA HUGE SITE, ST. LOUIS, MO; 0171

PO: BOWLES

ORGANOCHLORINE PESTICIDES ONLY

METHOD 8080/8081 PAGE One

SAMPLE ID: WASTE SLUDGE

LAB ID: 9509/044-004

QUANT FACTOR: 47

47906.49

		PRACTICAL QUANTITATIO	RESULTS
CAS NUMBER	<u> </u>	μG/KG	<u>μG/KG</u>
319-84-6	alpha-BHC	143.72	. U
319-85-7	beta-BHC	287.44	ប
319-86-8	delta-BHC	431.16	81.4
58-89-9	gamma-BHC (Lindane)	191.63	ับ
76-44-8	Heptachlor	143.72	U
57-74-9	gamma-Chlordane	177.25	287
57-74-9	alpha-Chlordane	2045.61	393
309-00-2	Aldrin	191.63	U
1024-57-3	Heptachlor epoxide	3976.24	- U
959-98-8	Endosulfan I	670.69	· U
60-57-1	Dieldrin	95.81	U
72-55-9	4,4'-DDE	191.63	U
72-20-8	Endrin	287.44	U
33212-65-9	Endosulfan II	191.63	U
72-54-8	4,4'-DDD	526.97	91.0
1031-07-8	Endosulfan sulfate	3161.83	U
50-29-3	4,4'-DDT	574.88	U
72-43-5	Methoxychlor	8431.54	383
7421-57-3	Endrin aldehyde	1101.85	U
12789-03-6	Chlordane (technical)	670.69	ប
8001-35-2	Toxaphene	11497.56	U

SURROGATE RECOVERY RESULTS

		% RECOVERY
877-09-8	Decachlorobiphenyl (DCB)	0
2051-24-3	2,4,5,6-Tetrachloro-meta-xylene	0
	(ŤĆMX)	

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 09/05/95 11:30
DATE RECEIVED: 09/05/95 15:39
DATE ANALYZED: 09/14/95
ANALYST: J.K.

2345 Millpark Drive Maryland Heights, MO 63043-3529 (314) 427-0550

ORGANOCHLORINE PESTICIDES ONLY METHOD 8080/8081 PAGE One

SAMPLE ID: MBLK 410

QUANT FACTOR :

333.33

		GOART PACTOR :	555.55
CAS NUMBER		PRACTICAL QUANTITATION LIMIT μG/KG	RESULTS μG/KG
319-84-6	alpha-BHC	1.00	U
319-85-7	beta-BHC	2.00	U .
319-86-8	delta-BHC	3.00	U
58-89-9	gamma-BHC (Lindane)	1.33	U
76-44-8	Heptachlor	1.00	U
57-74-9	gamma-Chlordane	1.23	U
57-74-9	alpha-Chlordane	14.23	U
309-00-2	Aldrin	1.33	U
1024-57-3	Heptachlor epoxide	27.67	U
959-98-8	Endosulfan I	4.67	U
60-57-1	Dieldrin	0.67	U
72-55-9	4,4'-DDE	1.33	U
72-20-8	Endrin	2.00	U
33212-65-9	Endosulfan II	1.33	U
72-54-8	4,4'-DDD	3.67	U
1031-07-8	Endosulfan sulfate	22.00	U
50-29-3	4,4'-DDT	4.00	U
72-43-5	Methoxychlor	58.67	Ū
7421-57-3	Endrin aldehyde	7.67	U
12789-03-6	Chlordane (technical)	4.67	U
8001-35-2	Toxaphene	80.00	U
	SURROGATE REC	OVERY RESULTS	
877-09-8 2051-24-3	Decachlorobiphenyl (DCB) 2,4,5,6-Tetrachloro-meta-xylene (TCMX)		% RECOVERY 161 103
II = INDETECT	EU		

U = UNDETECTED

DATE ANALYZED:

09/14/95 J.K.

ANALYST:

2345 Millpark Drive Maryland Heights, MO 63043-3529 (314) 427-0550

CHLORINATED HERBICIDES METHOD 8150/8151 PAGE One

SAMPLE ID: MBLK 436

QUANT FACTOR :

200.00

PRACTICAL QUANTITATION

CAS NUMB	ER	LIMIT ug/KG	RESULTS μg/KG	
94-75-7	2,4-D	24.00	U	
93-72-1	2,4,5-TP (Silvex)	3.40	U	
93-76-5	2,4,5-T	4.00	U	
88-85-7	Dinoseb	1.40	U	

SURROGATE RECOVERY RESULTS

1918-02-1 PICLORAM

% RECOVERY

59

U = UNDETECTED

DATE ANALYZED:

09/14/95

ANALYST:

J.K.--

... Commenter Tarring and Margerials • American Chemical Society • American Industrial Hygiene Association

2345 Millpark Drive Maryland Heights, MO 63043-3529 (314) 427-0550

VOLATILE ORGANICS ANALYSIS METHOD SW-846 8020/8021

Sample Identification: MBLK

318

RUN NUMBER	CAS NUMBER		PRACTICAL QUANTITATION <u>LIMIT</u>	RESULTS
318	71-43-2	Benzene	2 μg/KG	U μg/KG
318	108-88-3	Toluene	2	U
318	100-41-4	Ethylbenzene	2	U .
318	1330-20-7	Total Xylenes	5	U
		SURROGATE RECOV	ERY RESULTS	% RECOVERY
318	540-36-3	1,4-Difluorobenzene		110
318	462-06-6	Fluorobenzene	. .	103
318	542-88-1	Bromochlorobenzene		70
318	460-00-4	4-Bromofluorobenzene		83

U = UNDETECTED

DATE ANALYZED: ANALYST:

09/06/95 T.H.



CHAIN OF CUSTOUY NECOND AIND MINALION

REQUEST

G116

Submitted by: (Name/Telephone) DARYL R. BOWLES, CHMM THE GEHM CORPORATION P.O. BOX 85 BOONVILLE, MO 65233 (616) 882-3486					Lab: (Neme/Address/Telephone) EMVIRO NMETICICS							TRRA HUGE ST. LOU	Client Name/Project Location: (Contact/Phone #) TRRH HUGE SITE ST. LOUIS, MO	
Project No.: 017/		Applica	ble Regulatory	No.:	P.O. #: (For Lab) Symptoms Symature: Bowles American					7	pigla sipi	natura!	ule	
Semple ID	Matrix	Preservative	Date	Time		ANALYSIS REQUEST								
					BTEX (8020)	TPH (418.1)	TPH MO.MOD (418.1)	OA-1 (IOWA)	GOMY)	TOQ (413.1)	PCB CONT, (BOBO)	PEST/BERS	OTHER	OTHER SOLES
XT-1-51	SOIL		9-5-95	1005	X		塞程					X		
XT-1-7'	SOIL		9-5-95	1000	X							X		
XT-1-7' XT-3+	SOIL		9-5-95	1145	X		4					X		
WASTE	Swore		9-5-95	1130			<u> </u>					X	玄	盃
							ļ							
					4									
														
								. ,						
} 				<u></u>										
							 	 			 			
					1		<u> </u>				<u> </u>			
COMMENTS/SPECIAL	INSTRUCTION			***************	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	•	*********		***********				***************************************	
			***************	****************	**************		***************	· ·	******************			***************************************		
	***************************************			*********************			***************************************		***************					
Religioushed by:		Paul	/k	Date:	-5-9	5	ne: 2:3 ne:	35	Received	-	1/4	M	Data: 9-5-9 Data:	Time: 2:36 Time:

Page 1

coc: 009784

Date Received: 09/05/95

Date Logged: 09/05/95

Date Due (PM): 09/15/95 Proj #: TERRA HUGE SITE

P.O. BOX 65

Status: Normal/LEVEL 5

Date Due (Client): 09/19/95 P.O. #: BOWLES

Quot #:

Boonville, MO. 65233 Daryl R. Bowles

The GEHM Corporation - G116

Mode: Mail

Date

						vace	
Sample Id. No.	Client Sample Nam	e/Number	<u>Matrix</u>	Container	<u>Preservative</u>	Collected Temp	Tests
22794 2509000044-001-01	XT-1-5'		SOIL	1-4 OZ GLASS	Cold	09/05/95	CHLORINATED HERBICIDES-SW-846 8150/8151 by Capillary 8020 BTEX-SW-846 8020 ORGANOCHI.ORINE PESTICIDES ONLY-SW-846-
				P			8080/8081 by Capitlary
		Sample Instructions:		ı			
22795		•					
9509000044-002-01	XT-1-7'		SOIL	1-4 OZ GLASS	Cold	09/05/95	CHLORINATED HERBICIDES-SW-846 8150/8151 by Capillary 8020 BTEX-SW-846 8020 ORGANOCHI ORINE PESTICIDES ONLY-SW-846- 8080/8081 by Capillary
	\$	Sample Instructions:		·			
22796 9509000044-003-01	ХТ-3		SOIL	1-4 OZ GLASS	Cold	09/05/95	CHLORINATED HERBICIDES-SW-846 8150/8151 by Capillary 8020 BTEX-SW-846 8020 ORGANOCHLORINE PESTICIDES ONLY-SW-846-
	•	Sample Instructions:		<u> </u>			8080/8081 by Capillary
22797		sample thattuctions.	•				
950900044-004-01	WASTE SLUDGE	S	SOLID WASTE	1-4 OZ GLASS	Cold	09/05/95	CHLORINATED HERBICIDES-SW-846 8150/8151 by Capillary ORGANOCHLORINE PESTICIDES ONLY-SW-846- 8080/8081 by Capillary
	9	Sample Instructions:					

Items Transferred 4

Relinquished By

Logged In By Phyllis Woods Login Coordinator

Time 09/05/95 15:39:33

Date 09/05/95 PM Signature: Kathy Abernathy Client Services Rep. oc: 009784

Jaryl R. Bowles

toonville, MO. 65233

O. BOX 65

he GEHM Corporation - G116

INTERNAL CUSTODY TRANSFER RECORD/LABORATORY WORK REQUEST

Date Received: 09/05/95

Date Logged: 09/05/95

Date Due (PM): 09/15/95 Proj #: TERRA HUGE SITE

Page 1

Status: Normal/LEVEL 5

Date Due (Client): 09/19/95 P.O. #: BOWLES

Mode: Mail

Quot #:

Received By Reason For Transfer Items Transferred Relinquished By Date Time Date Time 7.00

ATTACHMENT 4

PHOTOGRAPHIC DOCUMENTATION

ATTACHMENT 4 - PHOTOGRAPHIC DOCUMENTATION

(ALL PHOTOGRAPHS TAKEN SEPTEMBER 5, 1995, 0900 - 1400)

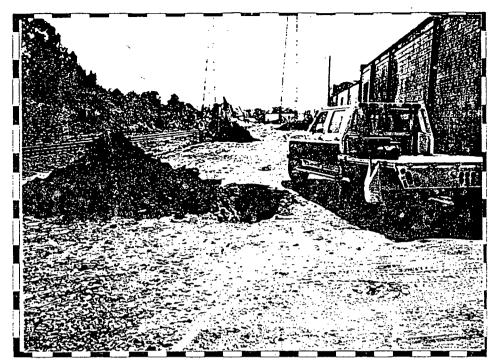


PHOTO 1: EAST VIEW OF SITE; XT-1 IN FOREGROUND; BACKHOE AT XT-2.



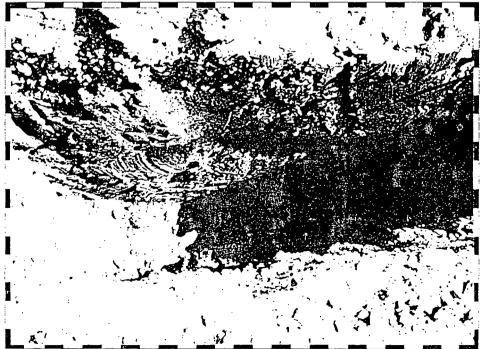




PHOTO 3: EAST VIEW OF XT-2: PERSONELL IN EXCAVATION IS STANDING ATOP 12" CLAY TILE.

PHOTO 4: SOUTH VIEW OF XT-2; ORANGE MARK IN CENTER DENOTES LOCATION OF 12" CONDUIT RUNNING SOUTH.





PHOTO 5: CLOSE VIEW OF 12" CONDUIT IN XT-2.

PHOTO 6: WEST VIEW OF XT-3: 12" CONDUIT AND BELL CONNECTION IN CENTER.





PHOTO 7: CLOSE VIEW OF PHOTO 6.



PHOTO 8: COLLECTION OF SAMPLE XT-3.